SHILAP Revista de Lepidopterología
ISSN: 0300-5267
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Sociedad Hispano-Luso-Americana de Lepidopterología
España

Liu, H. X.; Li, H. H.
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SHILAP Revista de Lepidopterología, vol. 42, núm. 165, enero-marzo, 2014, pp. 77-82
Sociedad Hispano-Luso-Americana de Lepidopterología
Madrid, España

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SHILAP Revta. lepid., 42 (165), marzo 2014: 77-82 eISSN: 2340-4078 ISSN: 0300-5267

Taxonomic study of the genus *Bahiria* Balinsky, 1994 in China with the description of *Bahiria maculans* Liu & Li, sp. n. (Lepidoptera: Pyralidae, Phycitinae)

H. X. Liu & H. H. Li

Abstract

The genus *Bahiria* Balinsky, 1994 is newly recorded for China. *Bahiria maculans* Liu & Li, sp. n. is described and *Bahiria maytenella* Yamanaka, 2004 is recorded from China for the first time. Images of adults and genital structures are provided.
KEY WORDS: Lepidoptera, Pyralidae, Phycitinae, *Bahiria,* new species, China.

Estudio taxonómico del género *Bahiria* Balinsky, 1994 en China con la descripción de *Bahiria maculans* Liu & Li, sp. n. (Lepidoptera: Pyralidae, Phycitinae)

Resumen

El género *Bahiria* Balinsky, 1994 es nuevamente registrado para China. Se describe como nueva a *Bahiria maculans* Liu & Li, sp. n., se registra por primera vez para China a *Bahiria maytenella* Yamanaka, 2004. Se proporcionan imágines de los adultos y las genitalias.
PALABRAS CLAVE: Lepidoptera, Pyralidae, Phycitinae, *Bahiria,* nueva especie, China.

Introduction

The genus *Bahiria* was established by BALINSKY (1994) with *B. latevalvata* Balinsky, 1994 as the type-species. It is characterized by the combination of the following characters: male antennae with long scales in sinus at base of flagellae on dorsal side, with short pectens on ventral side; labial palpi in male usually long, upturned beyond vertex and appressed to face. Venation (Fig. 1): Forewing with R_3 and R_4 stalked for more than 1/2 length of R_4, R_2 adjacent to R_{3+4} basally, M_2 and M_3 close at base, from the same point of lower angle of cell. Hindwing with M_1 originating from upper angle of cell, M_2 and M_3 stalked for more than 1/3 of their length, originating from lower angle of cell, CuA_1 originating from before lower angle of cell. Genitalia: Male genitalia with uncus triangular or quadrangular, gnathos hooked distally, juxta U-shaped, aedeagus cylindrical, with or without cornuti. Female genitalia with papillae anales triangular, ductus bursae membranous or partly sclerotized, corpus bursae membranous, signum usually present at the anterior part of corpus bursae; ductus seminalis originating from posterior margin of corpus bursae.

Bahiria is similar to *Magiria* Zeller, 1867 in venation, structure of palpi and some features of the genitalia. The main differences can be found in male antennae which have pectens on the ventral side, a distally strongly hooked gnathos in the male genitalia and the presence of signa in the female genitalia.

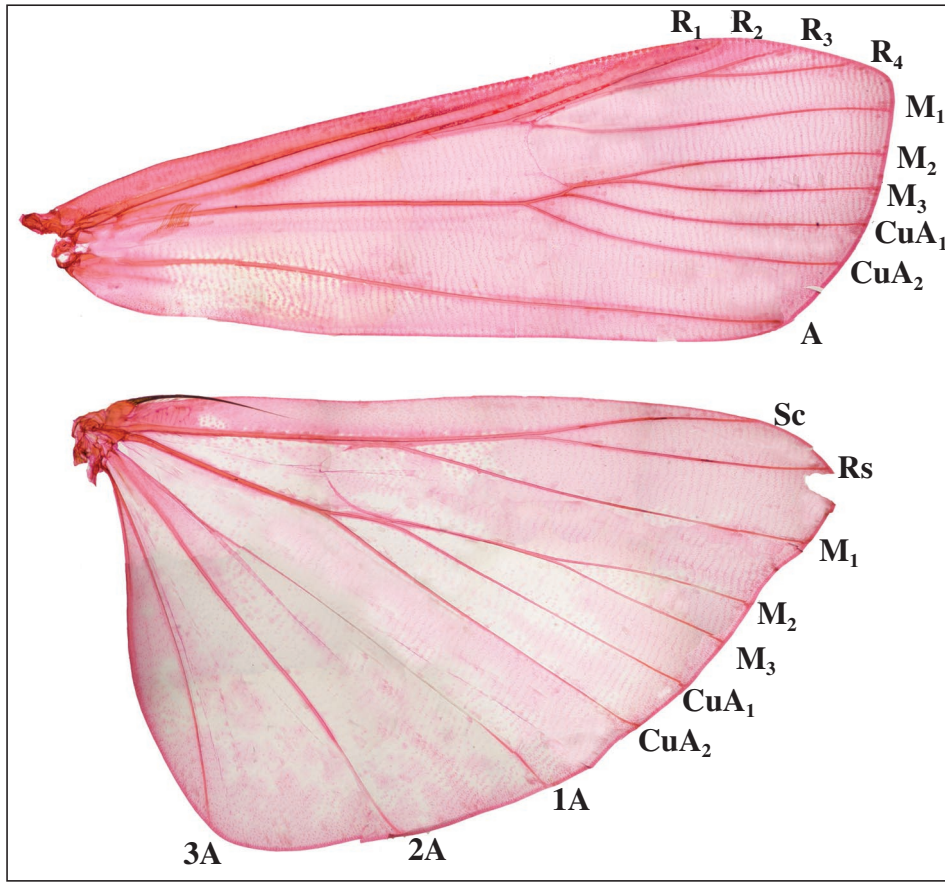


Fig. 1.– Venation of *Bahiria maculans* Liu & Li, sp. n., paratype female, slide No. LHX12158W.

In *Magiria* the antennae lack pectens in male, the gnathos is not hooked distally in the male genitalia and the signum is absent in the female genitalia.

There are nine described species in *Bahiria* (BALINSKY, 1994; YAMANAKA, 2004; NUSS *et al.,* 2007-2013), distributed in South Africa, Zimbabwe and Japan. But little is known about its biology so far. Based on the species collected from Hainan and Guizhou Provinces in China, we report *Bahiria* Balinsky for the first time from China, describe *B. maculans* Liu & Li, sp. n. as new to science, and record *B. maytenella* Yamanaka, 2004 as new for China. The type specimens are deposited in the Insect Collection, College of Life Sciences, Nankai University, Tianjin, China.

Material & Methods

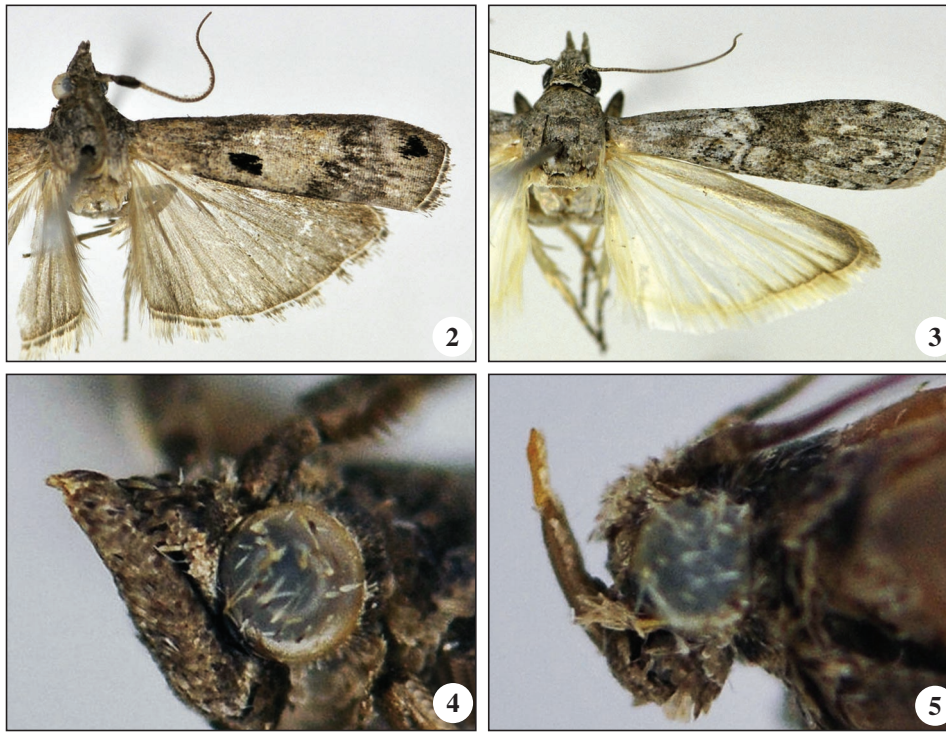
The specimens examined were collected using light traps. Genitalia dissection and mounting methods follow LI (2002). Images of adults were taken with a Nikon D300 digital camera plus a macro lens, and images of genitalia were captured with an Olympus C-7070WZ digital camera attached to an Olympus BX51 microscope. All the studied specimens, including the types of the new

species, are deposited in the Insect Collection of the College of Life Sciences in Nankai University, Tianjin, China.

Taxonomic accounts

***Bahiria maculans* Liu & Li, sp. n.** (Figs. 2, 4-6, 8)

Type material: Holotype ♂, China: Dashahe Nature Reserve, Dao zhen (28º 53' N, 107º 36' E), Guizhou Province, 1350 m, 26-VIII-2004, leg. Yunli Xiao, genitalia slide no. LHX11207. Paratype 1 ♀, same locality as holotype, 25-VIII-2004, leg. Yunli Xiao, genitalia slide no. LHX 12158.



Figs 2-5.– Adults of *Bahiria* spp. **2-3.** Adults: **2.** *B. maculans* Liu & Li, sp. n., holotype, ♂; **3.** *B. maytenella* Yamanaka, ♀; **4-5.** Head of *B. maculans* Liu & Li, sp. n., **4.** Male; **5.** Female.

Description: Adult (Fig. 2). Wingspan 24.0-26.0 mm. Vertex in male with long greyish brown scales, in female with short whitish scales. Male antennae with scape greyish brown, length about 2 times of its width; flagellae greyish white with brown rings on dorsal side, sinus with two lines of long scales arranged opposite each other, reddish brown on ventral side, pectens three times longer than width of flagellae; female antennae filiform, yellowish white. Labial palpi in male (Fig. 4) upturned, extending well beyond vertex, first segment brown, second segment greyish white, appressed to face, third segment small, yellowish brown, 1/7 length of second segment; in female (Fig. 5) first segment yellowish brown, second and third segments white, third segment about 1/3 length of second segment. Patagium, tegulae and thorax grey. Forewing with ground color brown, tinged with orange scales on

basal and distal areas of cell, with dense white scales from basal 1/4 of wing to end of cell, with two large conspicuous black spots: one rectangular, at basal 2/5 of wing below lower margin of cell; another triangular, subcostal, close to apex; antemedial line and discal spot invisible; postmedial line greyish white, outwardly oblique from basal 4/5 of costa to vein M_1, next obliquely inward to basal 6/7 of dorsum, with dense diffused black scales between outer margin of cell and postmedial line; fringe grey, basal line white. Hindwing grey, terminal line brown; basal 1/3 of fringe brown, distal 2/3 greyish, basal line white. Legs dorsally white, ventrally yellowish brown, tibiae of midlegs with long yellow scales dorsally, tarsi with two rows of spurs, each segment distally white, inner spurs 1.7 times length of outer spurs. Male genitalia (Fig. 6). Uncus triangular, apex rounded. Gnathos cone-shaped, about 1/2 length of uncus, hooked distally. Transtilla a short bar. Valva narrowly elongate, slightly widened distally, length 10 times width, densely setose on distal half; clasper from base of valve, short fingerlike, with a dorso-medial papilla, sparsely setose; basal half of costa 1/2 width of valva, distal half gradually narrowing, apically reaching end of valva. Juxta small square shaped basally; lateral arms widely apart, almost horizontal, rod-like, slightly dilated and setose before apex. Vinculum U-shaped, length 1.7 times of greatest width, convex at middle on anterior margin. Aedeagus 1.4 times length of valva, with a mass of sclerotized wrinkles and granules from basal 1/3 to distal 1/6; cornutus absent. Culcita lost during dissection. Female genitalia (Fig. 8). Papillae anales triangular, densely setose. Anterior margin of eight segment convex, posterior margin straight. Apophyses anteriores same length as apophyses posteriores. Antrum weakly sclerotized. Ductus bursae about 1/3 length of corpus bursae, basal half granulated, distal half membranous. Corpus bursae nearly rectangular, length about 4 times of width, with three signa: first signum a conical spine, at posterior 1/3; second signum consisting of two toothed plates, at the middle; third signum a large rounded net-shaped plate composed of numerous cone-shaped thorns, at the anterior part. Ductus seminalis originating from posterior margin of corpus bursae.

Diagnosis: *Bahiria maculans* Liu & Li, sp. n. is similar to *B. maytenella* Yamanaka, 2004 in morphology, but can be distinguished from the latter by the forewing having two black spots; the clasper with a papillary process, the lateral arms of the juxta not bulbously dilated distally, and the aedeagus lacking a cornutus in the male genitalia; the ductus bursae partly sclerotized and the corpus bursae with three signa in the female genitalia. In *B. maytenella* Yamanaka, the forewing lacks black spots; the clasper does not have a papilla, the lateral arms of the juxta are bulbously dilated distally and the aedeagus has two cornuti; the ductus bursae is membranous and the corpus bursae has one signum.

Distribution: China (Guizhou).

Etymology: The specific name is derived from Latin *maculans*, referring to the black spots on the forewing.

Bahiria maytenella Yamanaka, 2004 (Figs. 3, 7, 9)

Bahiria maytenella Yamanaka, 2004: 185.

Material examined: 1 ♂, China: Hainan Province: Mt Bawang, (19º 04’ N, 109º 02’ E), 137 m, 22-IV-2009, leg. Qing Jin and Bingbing Hu, genitalia slide no. LHX11140; 1 ♀, Mt Wuzhi, Shuiman (18º 31’ N, 109º 28’ E), 650 m, 16-V-2009, leg. Zhiwei Zhang and Weichun Li, genital slide no. LHX12660; 1 ♀, Mt Tonggu, Weichang City (22º 39’ N, 111º 12’ E), 50 m, 18-VII-2008, leg. Bingbing Hu and Li Zhang.

Diagnosis: Adult (Fig. 3) wing span 20.0-26.0 mm. *Bahiria maytenella* is characterized in the male genitalia by the juxta with the lateral arms bulbously dilated distally (Fig. 7) and the vinculum parallel sided laterally; in the female genitalia it is characterized by the cup-shaped antrum and the signum being a round plate composed of cone-shaped thorns (Fig. 9). It is similar to *B. maculans* Liu & Li, sp. n., with the differences noted above.

Hostplant: *Maytenus diversifolia* Cing Hou (Celastraceae).

Distribution: China (Hainan), Japan.

Remark: The transtilla of this species is bar-shaped. In Yamanaka’s description (2004) the transtilla is absent. *Bahiria maytenella* is here recorded from China for the first time.

Discussion: The genus *Bahiria* consists of ten species: eight species were described by BALINSKY (1994) from South Africa and Zimbabwe; one species was described by YAMANAKA (2004) from Japan; and the tenth species is described in the present paper. The two Oriental species have slender valvae, which are very different from those of its African congeners. However, all the other characters are consistent with those of *Bahiria*.

Acknowledgements

We express our thanks to the anonymous reviewers for their comments to improve the manuscript, and to Dr. Antonio Vives (Spain) for translating the abstract to Spanish. This research was supported by the National Natural Science Foundation of China (No. 31093430 and No. J1210005).

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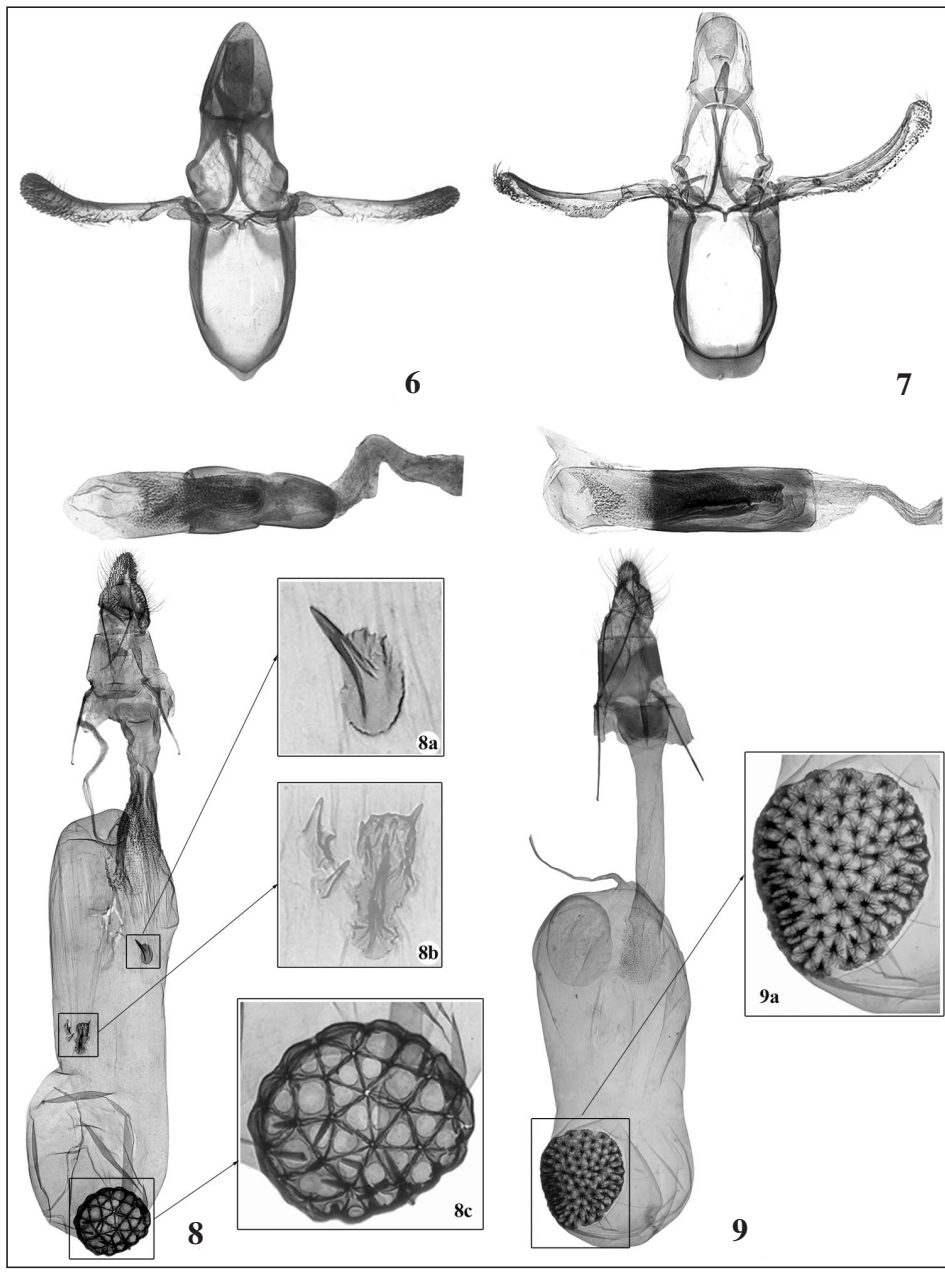
(Recibido para publicación / *Received for publication* 14-I-2013)
(Revisado y aceptado / *Revised and accepted* 5-IV-2013)
(Publicado / *Published* 30-III-2014)



Figs. 6-9.– Genitalia of *Bahiria* ssp. **6-7.** Male genitalia: **6.** *Bahiria maculans* Liu & Li, sp. n., holotype, slide No. LHX11207; **7.** *B. maytenella* Yamanaka, slide No. LHX11140. **8-9.** Female genitalia: **8.** *B. maculans* Liu & Li, sp. n., paratype, slide No. LHX12158, **8a-c.** Enlarged signum; **9.** *B. maytenella* Yamanaka, slide No. LHX12660, **9a.** Enlarged signum.